ADAM SMITH AND THE SCOTTISH HISTORICAL SCHOOL: METHOD, EPISTEMOLOGY & HISTORY

Manolis Manioudis/ Department of Economics, University of Crete mmanioudis@econ.soc.uoc.gr

Recibido: 20 de junio de 2014 Aceptado: 15 de octubre de 2014

Abstract:

The Scottish historical school had produced a variety of intellectual figures that determined the progress of social sciences. Its legacy is crystallised in the justification of history's importance in social disciplines. Adam Smith was the most eminent product of the Scottish historical school. His work, despite of being the locus classicus of classical political economy, has promoted a chemical symphysis between theory and history. Evidently, his Scottish roots determined the character of his epistemic choices. His philosophy of science, together with a clearly defined methodology assigned history as the raison d'etre of his work. More specifically the acceptance of Newton's analytic-synthetic method opens the door to history to become a congenital ingredient of his analysis. The smithian work produced a special conjunction between method, epistemology, theory, and history that determined the history of political economy

Keywords: Adam Smith, history, Scottish historical school, methodology, theory, epistemology

Resumen: La Escuela Histórica Escocesa ha producido una variedad de figuras intelectuales que determinaron el progreso de las ciencias sociales. Su herencia se ha cristalizado en que ha proporcionado una justificación de la importancia que tiene la historia en las disciplinas sociales. Adam Smith fue el producto más eminente de la Escuela Histórica Escocesa. Su obra ha promovido una fusión entre teoría e historia. Evidentemente, sus raíces Escocesas determinaron el carácter de sus estudios epistémicos. Su filosofía de la ciencia, junto con una claramente definida metodología hicieron de la historia la *raison d' etre* de su obra. Más específicamente, la aceptación del método analítico-sintético de Newton abrió las puertas a la historia para que devenga un ingrediente constitutivo de sus análisis. La obra smithiana presenta una conjunción especial entre método, epistemología, teoría e historia, que determinó la historia de la política económica.

Palabras clave: Adam Smith, historia, Escuela Histórica Escocesa, metodología, teoría, epistemología

History and Historiography in the age of Scottish historical school

The classical school of political economy had as its predecessor the legacy of Scottish Historicism. Evidently, the Scottish historical school was the reflection of specific historical fermentations and shaped the content of the classical school of political economy (Skinner 1990, 158). The tradition of Scottish Historicism was the product of the period of the Scottish Enlightenment, a period which had been connected with a general incision in the disciplines of social sciences. Skinner (1967, 32) notices that "Of all periods of Scottish history, the eighteenth century is surely one of the most striking" since it is connected with the emergence of profound economic and political changes, and with the blow up of fascinating intellectual ideas. Its intellective product, the Scottish historical school, despite of being recently recognised (Holloway 1963, 157) was the real crystallization of such an outburst. It is undeniable that the academic character of the Scottish historical school had been stemmed by its socio-economic environment: The necessity for economic growth, the demand for coordination within an economy with specialised production, the questions concerning income distribution, and the role of government, constituted the framework of eighteenth century Britain. Evidently, such pressing economic and social conditions set the scene for the inflorescence of an intense intellectual climate which attempted to systematize such transitive conditions. David Hume's (1932, 225) famous celebration is indicative of such an intense literary process: "Really it is admirable, how many men of genius this country produces at present!" A. Dow, S. Dow, & A. Hutton (1997, 391) notice that "the intellectual environment was that of the Scottish Enlightenment" and was identified with a direct reaction against clerical dogmatism and by a straight disposition to acquire knowledge by reason. Evidently, the Scottish historical school influenced a variety of scientific disciplines, such as political economy, philosophy, ethics, law &c, but it's more crucial impacts were upon the science of history.

Evidently, there emerged among the Scottish scholars an attitude to understand and interpret the nature of these newfangled social and economic phenomena. The main feature of this attitude, despite of its multidisciplinarity (Montes 2003, 732), was the understanding of the historical evolution of such phenomena. Therefore, history's importance was 'proximal' in such a revolution of ideas. This is why Skinner (1975, 256) calls the period of the mid-eighteenth century as the 'Age of History'. It is remarkable that no other age had such an intensive historical literature and criticism as the eighteenth century when, in Thompson's words (1942, 94), "everyone read and talked history".

However, the 'Age of History' followed the 'Age of Erudition' of the seventeenth century, which changed the general intellectual climate of the Middle Ages and set the scene for the emergence of a critical vein in historical writing. In the seventeenth century many discrete but interrelated events prepared the ground for a decisive drift in historical scholarship. Firstly, this century provided a large amount of historical materials since the dissolution of the monasteries in England- under Henry VIII- which was accompanied with the pillage of monastic libraries had thrown upon the market vast quantities of manuscripts and other documents which often could be bought for a song (Lambert & Schofield 2004, 3). Secondly, many auxiliary disciplines to history had emerged. The seventeenth century gave systematic and scientific form to chronology, paleography, bibliography, numismatics, and archeology (Lambert & Schofield 2004, 7-9). Thirdly, a fact that contributed to the stronger diffusion of scientific knowledge was the publishing opportunities that were conventionally varied. However, beyond these reasons, the most important fact that contributed to scientific advancement was that sciences in general and historical scholarship in particular being free from politics attained the necessary air to develop smoothly. Essentially therefore, this transitive period introduced a new era in historical scholarship, which was of cooperative nature, and at the same time inducted a general critical spirit in it. The most representative figure of this trend was Jean Mabillon who introduced the positive criticism and "prove the honesty of sources as well as the falsity of some" (Thompson 1942, 19). Mabillon developed the rules and the criteria of judging sources by comparing a great number of documents of the same time, place, and country. Lord Acton in his Historical Essays and Studies observed that Mabillon

"belongs to the family of pioneers, and [...] is one of the best known names in the line of discoverers from Valla [...] to Morgan [...] and although disciplined and repressed by the strict reform of Saint Maur, he rose above all his brethren to be, as an historian, eminently solid and trustworthy, as a critic the first in the world" (1907, 460)

It must be noticed that despite its French origins, the spiritual fermentations of the 'Age of Erudition' had been diffused in Europe and mainly in its southern part, that of Belgium, Netherlands and Protestant England.¹ Evidently, the Glorious Revolution of 1688 by being "something besides a political change of vast significance and importance" (Thompson 1942, 42) changed the intellectual atmosphere in Britain as well. In England, the most representative figure of the 'Age of Erudition' was Thomas Madox who's *The*

¹ The milestone of such diffusion in Great Britain was the publication of *The Annales of the Kingdom* of *Ireland by four Masters* (1612). The chief compiler of this monumental work was the monk Mícheál Ó Cléirigh (c. 1590 – 1643).

History and Antiquities of the Exchequer (1711) comprised the locus classicus of this age and became later a standard work for the study of English medieval history. Madox's famous *Prefatory Epistle*, beyond being a comprehensive survey of sources, is an introductory dissertation on the nature and methods of historical criticism.

Essentially, the eighteenth century had 'professionalized' this deep interest in historical past. It is indicative that in 1724, George I founded for every university a professorship of modern history and modern languages. Thompson (1942, 94) notices that in the eighteenth century history had been thought as "an arsenal of facts with which to bombard the *ancien regime* and bring about the desired reforms". It was unavoidable that social sciences, like social theory and political economy which had been emerging during this era, had been deeply influenced by this prevailed attitude on history. History afforded invaluable information in regards to the principles of human nature which was the subject-matter of Moral Philosophy, the mother discipline of both social theory and political economy.

Especially in Scotland this attitude was ultimately receptive. The Scottish university system was highly productive in the eighteenth century and prepared students who attained eminence in sciences (Morrell 1971, 159). In Scotland history was already inherent in the Scottish general university education, being an issue of central importance in any scientific discussion. Dow (1987, 341) notices that "it was customary for the professors of physics and mathematics for example, to teach the elements of their subjects, as being the most important part, and to do so by laying out the historical development of ideas". Hopfl (1978, 32) notes that in any academic dissertation in Scotland we anticipate a purely academic and disinterested love of reconstructing and making sense of the past experience. Therefore, there was, as Taylor (1956, 162) rightly observes, an intellectual impulse in Scottish academic life which kindled a zealous spirit of enthusiasm and inquiry of historical past in the universities of Scotland.

However, despite of some radical shifts in historiography, the late eighteenth century was identified with narration and description. The role of narration was underlying in the writings of the Scottish historical school. Smith, the leader of Scottish Historicism, seems to have considered narration of primary purview. He noticed in his *Lectures on Rhetoric and Belles Lettres* that

"The facts which are most commonly narrated and will be most adapted to the state of generality of men will be those that are interesting and important. Now these must be the actions of men; The most interesting and important of these are such as have contributed to great revolutions and changes in State and Governments" (1985, xvii, 90)

Moreover, Kames observed that "Singular events, which by the prevalence of chance or fortune excite wonder, are much relished by the vulgar. But readers of solid judgment find more entertainment in studying the constitution of a state, its government, its laws, the manners of its people" (cited in Skinner 1967, 37). Therefore, the Scottish historical school was not an anti-narrative one, since a synthesis of narration and historical criticism constituted the *raison d'etre* of school's radical views upon history. However its history was totally different to the mainstream historiographical paradigm which was focalized on pure narration and description.

Generally, history's importance is elevated in the writings of the Scottish historical school since a distinctive theory of history (that of stages theory) established a link between economic and social organisation (Skinner 1965, 1-2). The historical factor was firmly embedded in the Scottish tradition of economic thought (Campbell 1976, 183) and comprised an epistemological element of central importance in the writings of its representatives. The 'art of history' unified together such diversified figures² and established a newfangled interest in the 'natural history' of civil society. For the eighteenth century's thinkers, history was the great teacher of human experience. It is indicative that for Hume (1985, 566) "history is not only a valuable part of knowledge, but open the doors to many other parts, [...] affords materials to most of the sciences" and "extends our experience to all past ages, and to the most distant nations". Moreover, in his *Introduction* to A Treatise of Human Nature (1736) Hume noticed that "As the science of man is the only solid foundation for the other sciences, so the only foundation we can give to this science itself must be laid on experience and observation" (Hume 2007, 5). Thereupon, the main ontological premise of this school was that in studying any branch of social science, such as law, politics, sociology or economics, it is important to go through two distinct stages of epistemic thought; the consideration of antecedents and the study of present conditions. Smith and his contemporaries seem to have accepted Aristotle's famous dictum that we can only understand what presently exists by considering 'the origins from which it springs'. Such a profound focusing upon past was decisive in their economic texts: Hume in particular, in his

² The Scottish historical school was multifarious in its nature. For instance Lord Kames and John Millar were the most influential legal minds of their time, David Hume was a profound philosopher and historian, William Robertson was an exceptional historian, Francis Hutcheson was the father of modernity in history, Adam Ferguson was a great sociologist, Dugald Stewart was an eminent economist, and Adam Smith a profound philosopher and political economist.

³ Aristotle in his *Politics* (Book I, 1252a) noticed that "If you consider the state-or anything else of that matter- in relation to the origins from which it springs, you will arrive at the clearest understanding of its nature".

Economic Writings, had attempted to incorporate economics into a broader science of human experience, at the centre of which stands history. At the same time Smith developed a specific theory of history in order to understand the function of economic phenomena in his *Wealth of Nations*.

Conclusively, it must be noticed that the history of the Scottish Enlightenment was *in toto* different to the orthodox or 'vulgar history of the eighteenth century which was basically concerned with particulars rather than universals (Skinner 1967, 46). More specifically, the history of the Scottish historical school, despite of accepting the necessity of narration, rejected the orthodox view that the study of history necessitates a great "concentration of facts and singular events" (Skinner 1965, 3) and promoted a history based upon theory and generalisations.

The Newtonian legacy and the 'Scottish' Newtonianism

Substantially such a view upon history was influenced by the general fermentations in the disciplines of natural sciences. Essentially, the seventeenth century had bequeathed in both natural and moral sciences Newton's revolutionary methodology and philosophy of science. Newton's work, the father of the 'Age of Reason' according to Montes (2003, 724; 2008, 569), was highly perceived by Scottish intellectuals and shaped the general academic climate of the eighteenth century.⁴ The *essence* of such an influence was Newton's analytic-synthetic method. His methodological stance is summurised in his most explicit epistemic reference, that of 'Query 31'in his *Opticks*:

"The Investigation of difficult Things by the Method of Analysis, ought ever to precede the Method of Composition. This Analysis consists in making *Experiments and Observations*, and in drawing *general Conclusions* from them by Induction, and admitting of no Objections against the Conclusions, but such as are taken from Experiments, or other *certain Truths*. For Hypotheses are not to be regarded in experimental Philosophy. And although the arguing from Experiments and Observations by Induction be no Demonstration of general Conclusions; yet it is the best way of arguing which the Nature

_

⁴ Montes (2008, 564) notices that "There is evidence that Scottish universities were not only prominently Newtonian, but also instrumental in establishing Newtonianism in Britain" and it is indicative that James Gregory and his nephew David Gregory, both Newtonians in spirit "were instrumental in forming generations of eximious mathematicians that helped to spread Newton's early reception" (ibid. 564). Colin Maclaurin was according to Wood (2003, 102) "the most capable and energetic exponent of Newtonianism working in Scotland, if not in Britain, during the first half of the eighteenth century. He helped not only to consolidate the Newtonian hold of Scottish academe, but also to create public science in the Scottish Enlightenment". Adam Smith was highly benefited from Maclaurin's sophisticated interpretation of Newton (Montes 2003, 723).

of Things admits of, and may be looked upon as so much the stronger, by how much the Induction is more general. And if no Exception occur from Phaenomena, the Conclusion may be pronounced generally. But if at any time afterwards any Exception shall occur from Experiments, it may then begin to be pronounced with such Exceptions as occur. By this way of Analysis we may proceed from Compounds to Ingredients, and from Motions to the Forces producing them; and in general, from Effects to their Causes, and from particular Causes to more general ones, till the Argument end in the most general. This is the Method of Analysis: And the Synthesis consists in assuming the causes discover'd and establish'd as Principles and by them explaining the Phaenomena proceeding from them, and proving the Explanations" (Newton [1704] 1730, 404-405).

Newton's analytic-synthetic method had been much more influencing in Britain -and mainly in its Scottish part- than that of Descartes', which dismissed the side of analysis.⁵ Descartes by superseding analysis's influential role and by believing that all values (natural, moral, and historical) were quantitative, of fixed estimation and of invariable operation, promoted a highly abstract and generalised view on historical proceedings.

However history is a deeply genetic process of change and transformation and is never a succession of fixed (or predefined) patterns. Therefore Newton's analytic-synthetic method was of a higher interpretative depth. Its ontological content is crystallised in Hume's words who reminds us that scientists proceed 'from particular instances to general principles' and they "still push on their enquires to principles more general, and rest no satisfied till they arrive at those original principles, by which, in every science, all human curiosity must be bounded" (Fiori 2012, 415). Newton's method had attained its apogee in Smith's Wealth of Nations, who was according to Cohen (1994, 66) "well educated in Newtonian science". It was Newton's methodological influence, through his analytic-synthetic method, and his acknowledgment that scientific progress is an open-ended process that had contributed to the development of Scottish moral philosophy (Montes 2008, 566). Wightman (1975, 60) suggests that Newton's theoretical system was largely influencing in Great Britain "half a century before Adam Smith could have made his judgment and, a fortiori, before he showed himself to have a pretty good idea of its nature". Therefore, there had been a mutual interaction which was extremely fruitful: Scotland was not only an early advocate of Newtonianism but more importantly, the Scottish

⁵ Redman (1993: 221) notices that "Scottish universities accepted very early Newton's achievements as superior to the rival Cartesian philosophy". It must be noticed Newtonian physics was taught at Scottish universities during Smith's lifetime. Therefore their influence upon him seems to be self-evident.

Enlightment, through the Scottish historical school, provided a special intellectual framework for assimilating and applying diversified approaches to Newton's revolutionary ideas.

Montes (2003; 2008) is right in his belief that the adoption (and adaption) of Newton's ideas was in toto different in Scotland in comparison to other countries of Europe, especially in its francophone part. However, Newtonianism, as a part of an intellectual revolution, cannot be separated from other fundamental and momentous debates like that of the critique of contractual theories, especially the Hobbesian one, and Montesquieu's historical teachings (Fiori 2012, 414). Especially, Montesquieu's work was highly influential in Scotland. Montesquieu despite of being Cartesian in spirit had not downgraded the importance of analysis. He noticed in his Esprit of Laws that the human world is far from being so well governed as the physical and it does not conform to exact laws as the physical does (Fiori 2012, 417). Evidently, such an enunciation is clearly related to the wider 'problem of historical change' as Skinner & Wilson (1975, 7) call it. Montesquieu's frequent references to historical events and facts are so multifarious and show his purport in historical past. Evidently, his institutional and comparative method was highly influential in the Scottish Enlightenment and shaped the general framework of its epistemic enunciations.⁶ Therefore such an interaction of Newton's method with other contemporary strands of philosophical thought produced a 'Scottish' reception of Newtonianism which was more 'empirical' in its nature and more historical in its methodology.

Adam Smith: the intellectual product of the Scottish historical product

Substantially, Adam Smith was a product of these parallel fermentations and had been a typical child of his own times. A true Scot of the eighteenth century as Macfie (1955, 86) calls him. It is indicative that Heilbroner (1973, 261) insists that Smith "albeit a major shaping intellectual force" was inevitably "a product of his time, sharing with it the limitations that seem to our age so patent and so crippling". This is why Clarke (1926, 349) warns us to view Smith "in relation to medieval conditions and eighteenth century Nationalism and Mercantilism" and "in relation to railroads, holding companies and giant power". Indeed, Smith, despite of being a member of a historically specific academic group, was a prominent intellectual figure. It is not surprising that Smith wrote about metaphysics,

32

⁶ See Fania Oz-Salzberger (2003), "The Political Theory of the Scottish Enlightenment" in Al. Broadie (ed.) *The Cambridge Companion to the Scottish Enlightenment*, Cambridge Companion to Philosophy, Cambridge

natural history, ethics, political economy, astronomy, rhetoric, jurisprudence (Montes 2003, 732), biology (Skinner 1975, 172) and had a perfect command of Greek and Latin languages. His caliber impelled Schumpeter to notice that "it is hardly credible that *The Wealth of Nations* and the *Essays of Astronomy*, so utterly diverse in subject matter could be the products of the same mind" (cited in Wightman 1975, 45). Conclusively, Skinner & Wilson (1975, 1) had shown off his competencies by noticing that "Smith's knowledge is particularly striking in a period where the division of labour has enhanced the difficulty of mastering a wide range of subjects. We know, for example, that Smith had an extensive knowledge of contemporary work in the natural sciences and the arts".

Smith as a child of the Scottish Enlightenment had thought history as a crucial ingredient in his *magna* effort: the construction of a general system of social science. Smith produced a theory of history which was the epistemic motif of his abstract reasoning. His theory of history had a threefold influence: It was influenced by a specific philosophy of science, as it is defined in his *Essays on Astronomy*, by the analytic-synthetic method, which was Newtonian in spirit but variant to Newton's method and by his *History of Historians* as it is analysed and presented in his *Lectures Rhetoric and Belles Lettres*. Each of these influences invoked certain features in his theory of history.

Smith's theory of history: its epistemic origins

Smith, despite of not developing an unambiguously defined philosophy of science, unfolded the spirit of it in his great *Essays on Astronomy* (1795) ^{where} he developed his views concerning the progress of scientific process. It must be noticed that Smith reached his main methodological and epistemic principles early in his career without fundamentally modified them afterwards (Viner 1968, 323).

According to Smith, the cause of any scientific project is the sense of surprise which is emerging when an observed object does not fall into a recognised theoretical pattern (Smith, [1795] 1980, section II, § 9: 42). For Smith, the feel of surprise is always followed by that of wonder. Wonder is defined by him as "the stop which is thereby given to the career of imagination, the difficulty which it finds in passing along such disjoined objects, and the feeling of something like a gap or interval betwixt them" (Smith, [1795] 1980, section II, § 9: 42-43). Therefore, wonder involves a disutility, a sense of discomfort (Skinner 1972, 309) since it raises doubt as to the analytical adequacy of the recognised theoretical pattern (Lindgren 1969, 899). The deficiency of the theoretical pattern is followed by a revision of

the accepted outlook and "To the extent that this effort is successful, confidence that our outlook will enable us to face the future with calm and tranquility is reestablished and wonder is diminished, if not eliminated" (ibid., 900). Therefore, theory (or science) is modified as a response to the emergence of wonder; and if wonder is persisting, the transformation of the recognised pattern is established and imagination attains its end.

Substantially, Smith's 'history of science' is that of 'revolutions of philosophy' since it "shows the dynamics of scientific problem-solving, in which hypotheses or theories evolve in a fairly regular sequence" (Kim 2012, 805). He notices that the recognised pattern "is subject to a process of modification when irregularities that conflict with the accounts and predictions of the paradigm are increasingly identified" (ibid., 805). Therefore, the emergence, development, and decay of theoretical systems have according to Smith an open-ended, typified sequence inasmuch as "a system is constructed with the aid of the imagination to provide coherence to the appearances. As time passes, irregularities are discovered, and successive, gradual modifications are introduced into the system or new phenomena are discovered that lead to conflicting accounts or dissatisfaction. This makes it likely that the system will be replaced by a new system, and so the process starts anew" (Schliesser 2005, 704).7 Thereupon wonder is the first principle which prompts man to science and the origins of any scientific attempt are rooted in the psychological desire to escape the sense of disutility which is associated with the sentiment of wonder.⁸

To sum up, there are three sentiments that determine every epistemological process: surprise, wonder, and admiration. For Smith, *Surprise* is "the violent and sudden change produced upon the mind, when an emotion of any kind is brought suddenly upon it" (Smith, [1795] 1980, section I, § 5: 35); *Wonder* "is that uncertainty and anxious curiosity excited by its singular appearance, and by its dissimilitude with all objects he had hitherto observed" (Smith, [1795] 1980, section II, § 4: 40)⁹; while *admiration* is attained through the discovery of "the real chains which Nature makes use to bind together her several operations" (Smith, [1795] 1980 section IV, § 76: 105). Montes's (2003, 734) comment is indicative, "Curiosity, intellectual dissatisfaction, and the scientific success that will soothe the mind, represent these three states of the mind". These stages constitute the ontological *raison d'etre* of any epistemological attempt. The *modus vivendi*

⁷ Smith was one of the first authors to see regular and successive revolutions in the history of astronomy and, perhaps, sciences and other forms of inquiry more broadly" (Schliesser 2005, 704).

⁸ Wightman (1975, 56) believes that wonder is the most important contribution of Smith's philosophy of science.

⁹ Smith evinces the role of wonder in scientific inquiries by comparing scientists with musicians who "have trained their minds to see as altogether separated any events which fall short of the most perfect connection" (Megill 1975, 82).

behind every analytical effort is the psychological need to soothe the imagination by eliminating surprise and wonder caused by incoherent and disjoined events (Megill 1975, 85). Therefore wonder, and not any expectation of advantage from its discoveries, is the first principle which prompts mankind to the study of philosophy and the original sense of pleasure that is derived from it prompts men to inquiries (Smith, [1795] 1980, Section III, § 3: 51). Conclusively, the basic purpose of any scientific explanation is to escape the disutility of wonder which is vanished altogether upon the clear discovery of a connecting chain of events, or of a theory in more modern terms (Skinner 1972, 309).

Accordingly Smith identifies scientific process with a certain mental attitude since the mind "constantly strives to place the appearance of nature into categories with which it is already familiar, and lessens discomfort from the unexpected" (Myers 1975, 282) and tries to reduce the possibility of this discomfort by maintaining familiar categories into which it can readily place most of the appearances coming before it. Smith noticed that the human mind:

"endevours to find out something which may fill up the gap, which like a bridge may so far at least unite those seemingly disjoined objects, as to render the passage of the thought between them smooth, and natural, and easy" (Smith, [1795] 1980, section II, § 8: 42)

Therefore, the mind searches for a thread to bridge the gap and unite the disparate appearances before it. The purpose of such unification is to facilitate the movement of thought across this gap. Substantially, theory is something that moves the mind in the direction of an explanation of an anomaly (a disjoined object or event) which is not exemplified by the previous theoretical paradigm. Indeed, the explanation that is offered by theory "can only satisfy the mind if it is coherent, capable of accounting for observed appearances, and stated in terms of 'familiar' or plausible principles" (Skinner 1998, 13). Therefore, as Endres (1991, 84) observes, "Smith's methodology emphasises a human need to overcome discomfort rendered by discordant observed appearances, with coherent explanation" while "the latter is designed to satisfy a psychological need to remove disutility and is successful only if it is founded on plausible and 'familiar' connecting principles" (ibid., 84).

¹⁰ Smith in his TMS and WN avoided the use of the word 'system' and replaced it with that of theory which seems to have been nothing more than a 'good' system. As Megill (1975, 85) rightly observes, "Significantly, in both *The Theory of Sentiments* and the *Wealth of Nations* Smith uses the word *system* when referring to the inadequate moral and economic theories of his predecessors". For instance, in the Book IV of his *locus classicus* he proceeded in the examination of "two such systems, 'the mercantile system', better known as mercantilism, and the 'agricultural systems', of which the most recent example was Physiocracy" (ibid., 91).

More specifically Smith believed that a well defined theory has to be comprehensive and coherent¹¹, familiar and simple¹², but also aesthetic (beautiful) and proper¹³ in order to appeal to the imagination by demonstrating the connecting principles of nature. Thereupon, although Smith did not speak (or search) for the absolute truth he gave reasons (i.e. simplicity, distinctness, comprehensibility, lack of reasonable competitors) for why a doctrine can be considered as an 'established' system (Schliesser 2005, 708).

Smith believed that a theoretical system of such qualities has to function as a machine, having a certain and well defined end.¹⁴ He noticed:

"Systems in many respects resemble machines. A machine is a little system, created to perform, as well as to connect together, in reality, those different movements and effects which the artist has occasion for. A system is an imaginary machine invented to connect together in the fancy those different movements and effects which are already in reality performed" (Smith, [1795] 1980, Section IV, § 19: 66).

Substantially, the end of a well defined theoretical system is to discover those great connecting principles that bind together all these discordant phenomena, and typify schemas that exemplify these events. Smith praised Newton's system which by introducing one great 'connecting principle' -that of gravity- was much simpler than that of Kepler, Descartes, and Galileo. He noticed in his *Theory of Moral Sentiments* that "Human society when we

_

¹¹ Coherency is related to what extent the background knowledge of the theoretical system is plausible (Kim 2012, 807). For Smith coherency is the most important standard of theory's evaluation since the judgment of hypotheses is related to such background knowledge.

Smith believed that simplicity is an important feature of a well-defined theory. For instance, as Smith noticed in his *Essays of Astronomy* the system of concentric spheres (Smith, [1795] 1980, section IV, § 7: 57-58) and that of Ptolemy (Smith, [1795] 1980, section IV, § 25: 69-70) were overpassed due to their lack of simplicity. For example, as Lindgren (1969 ff. 9, 902) rightly observes, "It was only when Newton suggested that gravity (which was clearly familiar) produces the motions which describe the courses of the heavenly bodies at the velocities and distances suggested by Kepler, that a satisfactory alternative to ancient superstition was at last developed".

¹³ Lindgren (1969, 905) notices that "an adequate outlook must not only meet the standards of comprehensiveness, coherence, and familiarity, but also that of beauty". Smith in many points of his work spoke of the 'love of analogy' (Smith 1980, 231). In his polemic against both Ptolemaic and Copernican systems he notices that based on both explanatory and predictive powers both systems have been equally favoured in regards to the capacity of complying with the same observations. However with respect to aesthetics the latter provided more coherence and simplicity (Smith, [1795] 1980, section IV, § 32: 74-75).

¹⁴ Smith's most interesting epistemological project was to systematise 'the natural order of things' in economic and ethical processes. In this project, he attempted to discern the *end* of each procedure. He noticed, "In every part of the universe we observe means adjusted with the nicest artifice to the ends which they are intended to produce; and, in the mechanism of a plant, or animal body, admire how every thing is contrived for advancing the two great purposes of nature, the support of the individual, and the propagation of the species. But in these, and in all such objects, we still distinguish the efficient from the final causes of their several motions and organisations" (Smith [1759] 1761, Part II, Section ii c. iii: 147).

contemplate it in a certain abstract and philosophical light, appears like a great, *an immense machine*, whose regular and harmonious movements produce a thousand agreeable effects" (Smith [1759] 1761, Part VII, Section III, c. I, § 2, 316 added italics,). On the other hand, new and singular events excite wonder in people's imagination and produce discomfort and tumult in the imagination (Smith [1759] 1761, Part II, Section, III, § 39, 154).

Therefore a theory which is based ontologically to some vigorous and indisputable principles gives us pleasure since there is a propensity, natural to all men, "to account for all appearances from as few principles as possible" (Smith [1759] 1761, Part VII, Section II, c. ii, § 14: 299). Theory, in Smith's thought, is identified with a 'connected order' that adjoins parts which seem to have some (natural) relation to one another (Smith [1776] 1976, Book V, c. i, § 9: 199). Therefore, a theory is an effort to introduce order and harmony into observed appearances by using some principles that connect phenomena into a chain-like fashion (Redman 1993, 216). Essentially, Smith's theory of history is seated on such an epistemic understanding of science and tries to give order to seemingly disparate events.

Smith's analytic-synthetic method and his critical realism

As it is indicated above, Smith adopted Newton's analytic-synthetic method and regarded it as the most influential of all. Smith was familiar with Newton's work due to his recorded interest in natural science and mathematics (Kim 2012, 799). He shared with Newton the same 'philosophy of science' since he saw science as an open-ended process of successive approximations" (Montes 2008, 570). Smith does not seem to believe that a theoretical system is capable of attaining the absolute truth. Though, he proposed a pattern of the evolution of systems of knowledge, not of the arrival at a final and immovable truth.

Skinner (1979, 114) noticed that Smith wrote with an enthusiasm concerning Newton's system "an enthusiasm which was apparently justified by the success which that system enjoyed in accounting for *a wider* range of appearances [...] in terms of a *smaller* number of basic (and familiar) principles". For Smith the Newtonian theoretical system succeeded in explaining a far wider spectrum of appearances than its predecessors and noticed that his system was compatible with order, balance, and equilibrium (Skinner 1972, 312, 471). Smith noticed that Newton's system was 'the greatest and most admirable improvement that was ever made in philosophy' since by joining the movements of the planets by the familiar principle of gravity he removed all the difficulties the imagination had hitherto felt in attending them through previous astronomical systems.

Smith adopted with an enthusiasm Newton's analytic-synthetic method by noticing that it is "undoubtedly the most Philosophical, and in every science whether of Moralls or Naturall philosophy etc., is vastly more ingenious" (1985, xxv, 146). Smith praised the analytic-synthetic method by indicating that it

"gives us a pleasure to see the phenomena which we reckoned the most unaccountable all deduced from some principle (commonly a well known one) and all united in one chain, far superior to what we feel from the unconnected method where everything is accounted for by itself without any reference to others" (ibid., 146)

For Smith a method (or a theory) is judged by the soothingness of man's imagination which is connected with mind's pleasure. His lengthy comment is worth of quoting here:

"When two objects, however unlike, have often been observed to follow each other, and have constantly presented themselves to the senses in that order, they come to be so connected together in the fancy, that the idea of the one seems, of its own accord, to call up and introduce that of other. If the objects are still observed to succeed each other as before, this connection, or, as it has been called, this association of their ideas, becomes stricter and stricter, and the habit of the imagination to pass from the conception of the one to that of the other, grows more and more riveted and confirmed [...] When objects succeed each other in the same train in which the ideas of the imagination have thus been accustomed to move, and in which, though not conducted by that chain of events presented to the senses, they have acquired a tendency to go on of their own accord, such objects appear all closely connected with one another, and the thought glides easily along them, without effort and without interruption. They fall in with the natural career of the imagination" (Smith [1795] 1980, Section II, § 7: 40-41).

Therefore Newton's analytic-synthetic method was highly influential in Smith's theory of history, since it was the methodological cornerstone of his abstract reasoning. More specifically this method was the mean of both understanding certain uniformities in the history of the mankind and of formulating deductions concerning social and economic events. At the same time Smith, despite his evident Newtonian influences, seems to have accepted that uniformities in social nature could be violated by appearances that are not systematized and interpreted by his analytical principles. Such an attitude impelled him to discard ultra-deductivism. Myers (1975, 288) notices that he shows "a cautious attitude toward using deduction as a general method of reasoning" and "while he admits that such reasoning has

helped at times to make great advances in knowledge he, nevertheless, sees it as a method that can be grossly misused" (ibid., 288-289). Smith despite of accepting the analytical adequacies of deduction he believed that it must be used very carefully. In addition he felt that the clarification of the real structures and mechanisms of the world necessitates "a creative strategy using abduction as well as deduction and induction" (Kim 2012, 800).

Substantially, such a methodological spirit influenced Smith's usage of the analytic-synthetic method. Accordingly, Smith used it under a differentiated, more sophisticated version and might have been "influenced by how the Scottish assimilated Newtonianism" (Montes 2008, 569). Generally Smith, despite of the fact that he considered the analytic-synthetic method "to be the scientific method par excellence" (Freudenthal 1981, 135) he used it under a more sinuous way. Smith, on the one hand adopted Newtonian method's primal principles but at once he attributed new functions to it. These functions implied a historical dimension to these principles reflecting Montesquieu's genetic account of history and his evolutionary views of society (Cremaschi 1989, 89). Therefore Smith was "neither sympathetic to the mechanistic view of the world, nor did he unconditionally endorse an axiomatic-deductive approach to reality" (Montes 2003, 731-732).

Smith's modification of the analytic-synthetic method is clearly influenced by his critical realist perspective. Such a perspective is determined by Smith's suggestion of the 'stratification and connection of reality' (Kim 2012, 802). Smith was neither a pure deductivist, nor a strict empiricist¹⁵, since his epistemic views of society as consisting of different (dissociated levels) gave to him the opportunity to be as theoretical, as historical in his approach. The end of the smithian work as Fiori (2001, 429) eloquently describes it is "to show that the surface of visible events might be connected to the invisible principles of organisation of complex systems in both the physical and economic world". Such a continuous confliction between visible and invisible levels of reality implied a critical realist perspective and underlined the congenital relation between history and theory. The end of the smithian work, as Fiori understands it, presupposes a critical realist methodology. Smith described the content of his methodology by noticing that:

¹⁵ Moreover Smith was not "the traditional empiricist confining his philosophical mind exclusively to the empirical and actual domains of reality" (Montes 2003, 741); and his denial of political arithmetic convinces this (Hollander 1973, 3). Such an interpretation is moving against to a variety of classical readings of Smith that underlie his empirical reasoning (see Bittermann 1940).

¹⁶ There is a variety of contributions who are pointing out the critical realist perspective of the smithian work (Lawson 1994; Montes 2003; Wilson & Dixon 2006; Kim 2012).

"The causes that may be assigned for any event are of two Sorts; either the *externall causes* which directly produced it, or the *internall* ones, that is those causes that tho' they no way affected the event yet had an influence on the minds of the chief actors so as to alter their conduct from what it would otherwise have been [...] Thus Caesar, Polybius, and Thucydides, who had all been engaged in most of the battles they describe, account for the fate of the battle by the Situation of the two armies, the nature of the Ground, the weather etc. Those on the other hand who have little acquaintance with the particular incidents of this sort that determine events, but have made enquires into the nature of the human mind and the severall passions, endevour by means of the circumstances that would influence them, to account for the fate of battles and other events, which they could not have done by those causes that immediately determine them" (Smith, 1985, xvii. 93-94)

Smith following Tacitus illustrated the critical perspective of his approach:

"In describing the more important actions he does not give us an account of their externall causes, but only of the internall ones, and tho this perhaps will not tend so much to instruct us in the knowledge of the causes of events; yet it will be more interesting and lead us into a science no less usefull, to wit, the knowledge of the motives by which men act; a science too that could not be learned from it" (Smith, 1985, xx, 113).

Therefore, Smith's search for principles on the basis of detailed historical analysis- and within an open theoretical system- is totally consistent to his critical realist methodology. For instance Lawson (1994, 504) found out a critical realist concept of 'position-practice system' in Smith's epistemology, impelling Montes (2003, 741) to conclude that "not only [...] critical realism sheds further light on our understanding of Smith, but also that critical realism can find in the 'father of the science' an eminent ally for arguing against the mainstream insistence on axiomatic-deductive models".

Smith's critical methodology has a threefold epistemic dimension: firstly, it spots out observation's importance since it accords that simple (and principal) ideas are "derived from sense impressions" (Kim 2012, 801); secondly it suggests that the imagination makes coherent principles concerning repeated events (Montes 2003, 729) and lastly, it promotes generalisation and classification in accordance to inductive logic. However, Smith, despite of the fact that he recognised that inductive reasoning constitute a valuable source of human knowledge, he insisted that "scientific knowledge is basically grounded in the discovery of a generative causal mechanism on the real level, from which the observed effects are believed to emerge" (Kim 2012, 817). Evidently, such an understanding of social reality is

related to his theoretical history which's aim is to imprint certain uniformities in human nature.

Thereupon, the symphysis of deduction and induction and his faith upon both generalizations and unique (specific) social events is related to an early critical realism which is highly diffused in the smithian work. Therefore, Smith's analytic-synthetic method, which connected methodologically theoretical and narrative history, was the method of moving by induction from phenomena to the framing of principles and then deducing the phenomena from those principles (Hatherington 1983, 504). Evidently, such a methodological stance illustrates the roles of both sense experience and history in the formulation of analytical principles.

The importance of induction was influential in Newton's theoretical system. As it was noticed above Newton was explicit in regards to his methodology. However Smith despite of his praises on Newton's theoretical system and its affinities with his; he noticed that it cannot "be taken as a final account of the way things 'really' are" (Diamond 1986, 61). Smith believed that human universe which is irregular, history-dependent, and unpredictable seems radically to diverge from Newton's physical universe which is regular, a-historical and predictable (Fiori 2012, 413).

Thereupon, Smith's analytic-synthetic method was moving 'from the concrete' to the abstract', from a simple process to a more complex one and reversely 'from the abstract to the concrete' and this process makes it possible to connote an element in its individuality. As Fiori notices "the complete process is from (unrelated) concrete to abstract entities, and subsequently from abstract to concrete objects" (ibid., 419). Evidently, such a methodological attitude favoured the widespread usage of historical evidence and highlightened history's importance. Conclusively, Smith's method is compacted in Megill's (1975, 93-94) ingenious observation:

"After observing the nature, the philosopher constructs theories to render those observations intelligible. He then observes nature again in order to detect discordances between these theories and the world experience. In the light of these new observations, he will either attempt to construct more comprehensive theories, or he will continue to make observations and collect data preliminary to a future attempt at theory-building".

Smith and History

Smith adopted the general (Scottish) attitude towards history and proceeded to a continuous elaboration of both history and broad

sociological facts and comparisons to develop his arguments and demonstrate his more abstract ideas. His influences were diversified. Taylor (1956, 264) notes that "From Hutcheson, he absorbed the doctrines of Hugo Grotius, who was a tradition in Hutcheson's classes, of Samuel von Pufendorf, whose De Officio Hominis et Civis, was a basic text, and of Gershom Carmichael whom Hutcheson regarded as by far the best commentator on that book". Despite of the fact that many commentators describe Smith 'as a superb historian' (Groenewegen 1982, 7), he was not a historian, in the strict sense of David Hume, Lord Kames, William Robertson, John Millar, and Adam Ferguson, but he "thought a great deal about history; he was deeply conscious of the history he is living in" and "it is probable that he saw the human species as immersed in history in all moments of its existence" (Pocock 2006, 270). His early biographer, Dugald Stewart ([1793] 1829, 5) noticed Smith's deep interest in history and his more systematised commentator, Skinner (1965, 3), has pointed out that Smith was "inclined towards historical studies from an early period of his life". Smith by having a considerable historical perspective and by seeking in Clarke's words (1926, 359) 'for the roots that things have in the past', had contributed to the development of historical thought in new directions and to the acquisition of new meanings by the term 'history'.

Essentially, the historical element was of prime importance in his moral, judicial, and economic discussions. It was a central feature of the analytical side of his methodology. Fiori (2012, 422) observes that "Smith in *Languages, History of Astronomy*, and *Wealth of Nations*, always treated subjects in which history and contingencies matter". Substantially, in Smith, the historical study became an epistemic tool to construct a coherent and holistic system of social science (Kim 2009, 41).¹⁷ Undeniably, this methodological treatment attained its apogee in the *Wealth of Nations* where, economics and history exist together, inextricably interwoven" (Campbell 1976, 183).

Evidently his faith on history (as evidence) is connected with the inductive side of his methodology. Smith despite of according an analytical primacy to deduction, was not a pure deductivist (in the sense of Walras was) and believed that general principles or axioms could be derived inductively. Such a highlightened role of induction had been a mutual methodological motif in the writings of the Scottish historical school. The Scottish philosophers discovered 'general principles' concerning human nature "by using the technique of induction, i.e. framing 'a universal principle' on the basis of observation of a vast mass of particular cases"

¹⁷ It is indicative that Smith in his 248 Letter to Rochefoucauld, dated on 1st November 1785 noticed his interest in "a sort of philosophical history of all the different branches of literature" (Smith 1977, 346).

(Skinner 1967, 35). Evidently their approach was both analytical and historical and "they sought *principles* and *causes* so that if it is necessary to start from the facts of history" (Skinner 1965, 3).

Therefore observation (and history) constituted a central part of their analysis. Hume was the greatest exponent of induction. In his Introduction to his *A Treatise of Human Nature* (1739) he noticed that

"We must therefore glean up our experiments in this science from a cautious observation of human life, and take them as they appear in the common course of the world, by men's behaviour in company, in affairs, and in their pleasures. Where experiments of this kind are judiciously collected and compared, we may hope to establish on them a science which will not be inferior in certainty, and will be much superior in utility, to any other human comprehension" ([1736] 2007, 7)

Substantially, according to Hume, the real foundation of any science must be seated on sense experience and observation, namely on history. As Skinner (1990, 146) noticed: for Hume "The study of human nature was thus to be based upon empirical evidence". As Hume himself made clear, the *Treatise* constituted an attempt to introduce the 'experimental method of reasoning into moral subjects'. Essentially, despite of the fact that theory has to explore the underlying causal mechanisms of social phenomena, there was no suggestion that such an exploration should be divorced from experience and historical evidence.

Smith proposed the application of 'the experimental method' and based the formulation of his general principles on observation and on 'actual' history. For instance A. Dow, S. Dow & A. Hutton (1997, 373) notice that "Smith's observations of the social aspect of human nature led him to expound his principle of sympathy in *The Theory of Moral Sentiments*, while his observation of economic processes led him to expound the division of labour in *The Wealth of Nations*" (added italics). Smith's Newtonian analytic-synthetic method impelled him to accord a special status on observation. Observation constituted the raison d'etre of the analytical part of his method. He noticed in his *Theory of Moral Sentiments* that "the general maxims of morality are formed, like all other maxims from experience and induction [...] But induction is always regarded as one of the operations of reason. From reason, therefore, we are always properly said to derive all those general maxims and ideas" (Smith [1759] 1761, Part VII, Section III, c. ii, § 6: 319, added italics).

Therefore Smith proposed a sophisticated version of analyticsynthetic method as long as in his *Lectures Rhetoric and Belles Lettres* (1985,xxv, 138) he noticed that knowledge requires the methods of 'experimental philosophy', using the technique of induction (analysis) in establishing basic (connecting) principles; and deduction (synthesis) for the clarification of social and economic phenomena. Substantially analysis was related to a narrative use of history, pointing out direct observations and events; while synthesis was connected with a theoretical history that was used in the typification of regularities and uniformities in human life.

Conclusive Remarks

Thereupon the threefold dimension of Smith's theory of history constituted the epistemic framework of his theory of history. Such a dimension influenced the epistemological essence of his historising. Smith used a type of theoretical history, with evident Newtonian influences in order to typify regulations and uniformities in the economic and social history of human mankind while at the same time he used a pure type of narrative history in order to either support such generalisations or pinpoint deviations from his theoretical outlook. Evidently, such a theory, despite of being open to contingencies and irregularities was both abstract and generalised, being an epistemological tool of high importance in the smithian work.

References

Acton, J.E.D., 1907, Historical Essays and Studies, Macmillan and Co, London.

Bittermann, H., 1940, "Adam Smith's Empiricism and the Law of Nature", *Journal of Political Economy*, 48 (5): 703-734

Campbell, R.H., 1976, "Scottish Economic History", *Scottish Journal of Political Economy*, 23 (2): 183-192

Clarke, J.M., 1926, "Adam Smith and the Currents of History", *The University Journal of Business*, 4 (4): 348-369

Cohen, B., 1994, "Newton and the Social Sciences, with Special Reference to Economics, or, the Case of the Missing Paradigm" in P. Mirowski (ed.) *Natural Images in Economic Thought*, Cambridge University Press, Cambridge: 55-90

Cremaschi, S., 1989, "Adam Smith: Skeptical Newtonianism, Disenchanted Republicanism, and the Birth of Social Science", in M. Dascal & O. Gruengard (eds.) *Knowledge and Politics: Case Studies on the Relationship between Epistemology and Political Philosophy*, Boulder, Co, New York: 83-110

Diamond, A., 1986, "The impact of Smith's philosophy of science on his Economics", *The American Economist*, 30 (1): 60-65

Dow, S., 1987, "The Scottish Political Economy Tradition", *Scottish Journal of Political Economy*, 34 (4): 335-348

Dow, A., Dow, S. & Hutton A., 1997, "The Scottish Political Economy Tradition and Modern Economics", *Scottish Journal of Political Economy*, 44 (4): 368-383

Endres, A.M., 1991, "Adam Smith's Rhetoric on Economics: An Illustration using 'Smithian' compositional rules", *Scottish Journal of Political Economy*, 38 (1): 76-95

Fiori, S., 2001, "Visible and invisible order. The theoretical duality of Smith's political economy", *European Journal of the History of Economic Thought*, 8 (4): 429-448

Fiori, S., 2012, "Adam Smith on Method: Newtonianism, History, Institutions, and the 'Invisible Hand", *Journal of the History of Economic Thought*, 34 (3): 411-435

Freudenthal, G., 1981, "Adam Smith's analytic-synthetic method and 'The system of Natural Liberty", *History of European Ideas*, 2 (2): 135-154

Groenewegen, P., 1982, "History and Political Economy: Smith, Marx, and Marshall", *Australian Economic Papers*, 21 (38): 1-17

Hatherington, N., 1983, "Isaac Newton's Influence on Adam Smith's Natural Laws in Economics", *Journal of the History of Ideas*, 44 (3): 497-505

Heilbroner, R.L., 1973, "The Paradox of Progress: Decline and Decay in the Wealth of Nations", *Journal of the History of Ideas*, 34 (2): 243-262

Holloway, S.W.F., 1963, "Sociology and History", History, 48 (163): 154-180

Hopfl, H.M., 1978, "From Savage to Scotsman: Conjectural History in the Scottish Enlightenment", *Journal of British Studies*, 17 (2): 19-40

Hume, D., 1932, *The Letters of David Hume*, (ed.: J.Y.T. Greig), The Clarendon Press, Oxford

Hume, D., [1777] 1985, Essays and Treatises on Several Subjects, vol. I-II, Liberty Fund, Indianapolis

Hume, D., [1736] 2007, *A Treatise of Human Nature: a critical edition*, (ed. David Fate Norton & Mary I. Norton), The Clarendon Press, Oxford

Kim, K., 2009, "Adam Smith's theory of economic history and economic development", *European Journal History of Economic Thought*, 16 (1): 41-64

Kim, K., 2012, "Adam Smith's 'History of Astronomy' and view of science", *Cambridge Journal of Economics*, 36: 799-820

Lambert, P. & Schoefield P., 2004, *Making History: An introduction to history and practices of a discipline*, Rutledge, London and New York

Lawson, T., 1994, "The nature of post Keynesianism and its links to other traditions: a realist perspective", *Journal of Post Keynesian Economics*, 16 (1): 503–538

Lindgren, R., 1969, "Adam Smith's Theory of Inquiry", *Journal of Political Economy*, 77 (6): 897-915

M. Manioudis - Adam Smith and the Scottish Historical School: method, epistemology & history

Macfie, A.L., 1955, "The Scottish Tradition in Economic Thought", *Scottish Journal of Political Economy*, 2 (1): 81-103

Megill, A., 1975, "Theory and Experience in Adam Smith", *Journal of the History of Ideas*, 36 (1): 79-94

Montes, L., 2003, "Smith and Newton: some methodological issues concerning general equilibrium theory", *Cambridge Journal of Economics*, 27: 723-747

Montes, L., 2008, "Newton's real influence on Adam Smith and its context", *Cambridge Journal of Economics*, 32: 555-576

Morrell, J.B., 1971, "The University of Edinburgh in the Late Eighteenth Century: Its Scientific Eminence and Academic Structure", *Isis*, 62 (2): 158-171

Myers, M.L., 1975, "Adam Smith as Critic of Ideas", *Journal of the History of Ideas*, 36 (2): 281-296

Newton, I., [1704] 1730, *Opticks: or a Treatise of the Reflections, Refractions, Inflections and Colors of Light*, William Innys, London

Pocock, J.G.A., 2006, "Adam Smith and History" in K. Hakonseen (ed.), *The Cambridge Companion of Adam Smith*, Cambridge University Press, Cambridge: 270-287

Redman, D., 1993, "Adam Smith and Isaac Newton", *Scottish Journal of Political Economy*, 40 (2): 210-230

Schliesser, E., 2005, "Wonder in the face of scientific revolutions: Adam Smith on Newton's 'Proof' of Copernicanism", *British Journal for the History of Philosophy*, 13 (4): 697-732

Skinner, A., 1965, "Economics and History- The Scottish Enlightenment", *Scottish Journal of Political Economy*, 12 (1): 1-22

Skinner, A., 1967, "Natural History in the Age of Adam Smith", *Political Studies*, 15 (1): 32-48

Skinner, A., 1972, "Adam Smith: Philosophy and Science", *Scottish Journal of Political Economy*, 19 (3): 307-319

Skinner, A., 1975, "Adam Smith: an Economic Interpretation of History", in A. Skinner & T. Wilson (ed.), *Essays on Adam Smith*, Clarendon Press, Oxford: 154-178

Smith, A., 1977, *The Correspondence of Adam Smith*, (ed. Ernest Campbell Mossner & Ian Simpson Ross), Clarendon Press, Oxford

Skinner, A., 1979, "Adam Smith: An Aspect of Modern Economics?", *Scottish Journal of Political Economy*, 26 (2): 109-125

Skinner, A., 1990, "The Shaping of Political Economy in the Enlightenment", *Scottish Journal of Political Economy*, 37 (2): 145-165

Skinner, A., 1998, "Adam Smith: The Philosopher and the Porter", Paper presented to the second conference of the *European Society for the History of Economic Thought* (ESHET): 1-31Accessed: http://dspace.gla.ac.uk:8080/bitstream/1905/588/1/9807.pdf

Smith, A., [1759] 1761, *The Theory of Moral Sentiments*, Printed for A. Millar in the Strand, London

Smith A., [1776] 1976, An Inquiry into the Nature and Causes of the Wealth of Nations, (ed. R.H. Campbell & A. Skinner), Clarendon Press, Oxford

Smith, A., [1795] 1980, *The Principles which lead and direct Philosophical Enquiries; Illustrated by the History of Astronomy*, in *Essays on Philosophical Subjects* (1980) (ed. W.P.D. Wightman & J.C. Bryce), Oxford University Press, Oxford

Smith, A., 1985, *Lectures on Rhetoric and Belles Lettres*, (ed. J.C. Bryce), Liberty Fund, Indianapolis

Stewart, D., [1793] 1829, "Account of the Life and Writings of Adam Smith, LL.D." in *The Works of Dugald Stewart*, vol. VII, Hilliard and Brown, Cambridge

Taylor, W.L., 1956, "Eighteenth Century Scottish Political Economy: The Impact on Adam Smith and his Work, of his Association with Francis Hutcheson and David Hume", *African Journal of Economics*, 24 (1): 261-276

Thompson, J.W., 1942, A History of Historical Writing, vol I-III, MacMillan Co, New York

Wightman, W. P. D., 1975, "Adam Smith and the History of Ideas": 44-67 in A. Skinner & T. Wilson (ed.), *Essays on Adam Smith*, Clarendon Press, Oxford

Wood, P., 2003, *Science, Philosophy, and the Mind*, in R. Porter (ed.), *The Cambridge History of Science, Eighteenth Century Science*, Cambridge University Press, Cambridge: 800-824

Viner, J., 1968, "Adam Smith" in David L. Sills, *The International Encyclopedia of the Social Sciences*, Macmillan Company, New York